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ABSTRACT

Issues in tutoring handicapped and gifted students are examined in the paper, one of a collection of papers commissioned for the Foundations project on the career development needs of students entering the National Technical Institute for the Deaf. Studies are reviewed which assess the effects of tutoring on both tutors and tutees in three broad areas: academic performance, personal/social adjustment, and moral development. Despite the finding that most research on tutoring is descriptive rather than experimental in nature, implications for special students are considered. A review follows of the major types of tutoring (adult-child, peer, and cross-age tutoring). The following are among the broad conclusions formed: (1) that tutoring is one of the most effective methods of instruction available and (2) that tutors can improve their social behaviors, adjustment, and self-esteem. It is suggested that hearing impaired students should benefit greatly from the tutoring experience. (CL)

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Tutoring Special Students

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Tutoring Special Students

Qui docet discet (one who teaches learns)
Learning is a social act (Meiklejohn, 1882)

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Tutoring is one of the oldest forms of instruction known to society. As early as the first century A.D. Quintilian in his Institutio Oratoria described instructional settings where older children were tutoring younger children. Between the years of 1530 and 1550 additional accounts are given of tutoring programs initiated in Germany and by the Spanish Jesuits in the College of Lisbon (Paolitto, 1976). These programs emphasized the benefits that accrue to the tutors as well as the tutees. Student monitors teaching ten students in a classroom became a popular option in these early years.

In 1797 Andrew Bell, a Scotsman developed one of the first exportable tutoring systems (Bell, 1797). Bell had been asked by the British government to establish a school for orphans in Madras, India. Since Bell was not a professional educator, he broke from traditional patterns of British schools and created an elaborate educational system which was based on older students tutoring younger students. As the program matured, Bell noted that his classroom behavior problems decreased and that student academic progress accelerated. After Bell published his first account of the program in 1797, Joseph Lancaster, a British educator was intrigued by the system and began to disseminate it throughout the British isles and France (Laborde, 1815). By 1816 there were about 100,000 children being taught in England and Wales using the Bell-Lancaster system (Bell, 1817).

It is not completely clear why the popularity of the Bell-Lancaster system declined in later years. Some have suggested that educators began to be less satisfied with the quality of the instruction that untrained 8 or 9 year old tutors were able to deliver (Dures, 1971). Others have asserted that as the supply of professional educators grew and as they became more well organized, it was to their professional and financial advantage to dismiss unpaid, untrained student tutors (Allen, 1976). Another societal force which mitigated against the Bell-Lancaster system was the increasing tendency of schools toward self-contained classrooms where students were segregated according to age. As children were placed in these graded classrooms, it became less convenient to have older students helping the younger ones.

It was not until the mid 1900's that tutoring saw a rebirth in society. It was also not until this period that researcher's began to look seriously at tutoring and to measure its effects. By 1974 peer and cross-age tutoring became a common part of most school systems. Allen & Devin-Sheehan (1974) conducted a survey of 110 schools which showed that 31% of the schools had formal tutoring programs. An additional 25% of the schools reported having informal tutoring programs. Of all students surveyed, 77% said that they ask other students for he p and 88% said that they work with other students on academic tasks.

Purposes of tutoring

At first glance it may seem that tutoring has a simple and singular purpose: to transfer new knowledge to the tutee. But the purposes and measured effects of tutoring are neither simple nor singular. Many investigators have been more interested in the benefits that come to tutors than to tutees. Bell, himself, was at least as impressed by the

growth of his tutors as he was by the new knowledge transferred to other students. As early as the 1600's Joachim Fortius said:

> . . . if students wish to make progress, they should arrange to give lessons daily in the subjects which they are studying, even if they have to hire their pupils. (Gartner, Kohler and Riessman, 1971, pp.14-15)

This passage illustrates the philosophical basis for the many research studies which have focused on tutor growth as opposed to tutee growth. So the assumption that tutoring programs are established solely for the benefit of helping tutees learn new academic skills is a common misconception. It is equally incorrect to view tutoring as simply another teaching method, a technique for transmitting information. From their inception tutoring programs have been multi-faceted experiments in socialization. The first effect Bell noted in his program was the improvement in classroom behavior, not students' performance in a spelling bee, but their ability to attend and their willingness to help other students master the task at hand.

In this section studies will be reviewed which assess the effects of tutoring on both tutors and tutees in three broad areas: 1) academic performance, 2) personal/social adjustment and 3) moral development.

Academic Performance of Tutees

One of the most common purposes of tutoring is to improve the academic performance of both tutors and tutees. Paolitto (1976) likens this purpose to what Kohlberg and Mayer (1972) have termed the "cultural transmission" model of education. In this form of education the teacher or tutor is seen as a resource of knowledge to be dispensed to the unknowledgable students. The cultural transmission model assumes that

the primary benefits of instruction will accrue to students and that only secondary benefits will accrue to teachers or tutors. The majority of studies investigating the effects of tutoring programs have been based on this philosophy.

Perhaps the most comprehensive study on tutoring was conducted by Susan Strait Hartley in 1977. Using the statistical methodology developed by Glass (1976), Hartley completed a meta-analysis comparing the effectiveness of tutoring with three other methods of instruction. A meta-analysis is an alternative way of reviewing a body of research. Most research review articles identify as many studies on a given topic as possible and then attempt to draw summary conclusions. Nearly half of all review articles in education fail to arrive at any firm conclusions (Osguthorpe and Johnson, 1980). It is interesting to note that the most recent review article on tutoring also fails to list any firm conclusions. In the conclusions section of the article the authors state:

> The preceding examination of the variables affecting tutoring outcomes is less than satisfying; few broad generalizations (other than that more research is necessary) can be made based on existing literature. . . Until research become(s) more systematic it will be impossible to draw valid generalizations and conclusions. (Devin-Sheehan, Feldman & Allen, 1976, p. 377)

The reason so many reviewers of research are so reluctant to state conclusions is because: 1) single studies often arrive at opposite conclusions and 2) most studies have methodological and procedural flaws which rend their conclusions suspect. Glass (1978), on the other hand, contends that since few perfect studies have ever been conducted, we should add statistical controls through secondary analysis procedures and then pool as many studies together as possible by coding each study's results into a common coding system. By including as many studies as

possible from as many sources as possible (unpublished as well as published), it is argued that the real effects of a given treatment will become clear.

Hartley (1977) collected 153 studies on four different instructional methods for teaching math: 1) tutoring, 2) computer assisted instruction, 3) programmed instruction and 4) individual learning packets. In each study she computed the "effect size" of the treatment and then computed the average effect size for each treatment across all studies. An effect size is computed by subtracting the mean score of the control group from the mean score of the treatment group and then dividing by the standard deviation from the raw data:

$$\text{Effect size} = \frac{\text{mean of treatment - mean of control}}{\text{SD from raw data}}$$

For example, imagine a group of sixth grade students were tutoring a group of second grade students in math. The second graders who were tutored scored an average of 80 on a posttest and a control group of second graders scored an average of 70 on the same test. If the standard deviation of the raw data equaled 10, the effect size would be computed as follows.

$$\text{Effect Size} = \frac{80 - 70}{10} = \frac{10}{10} = 1.0$$

This would mean that students who were tutored performed one full standard deviation better than the students who were not tutored (the control group).

Combining the 73 effect sizes from studies on tutoring, Hartley found that the average effect size for tutoring was .6. This compared with .4 for C.A.I., .2 for individual learning packets and .1 for programmed instruction. In overall effect size tutoring was clearly the most effective form of individualized instruction. It is important to

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note that more traditional forms of group instruction were not included, but that control groups in many studies employed this form of instruction as a comparison method. Therefore, it can also be concluded that tutoring was superior to group instruction.

Hartley found further that while tutoring was the most effective method as a supplementary technique, it was fully three times more effective as a replacement technique. In other words, when students received math instruction through tutoring alone (with no formal reinforcement in group settings) it was three times more effective than if students received the instruction through Computer Assisted Instruction, Programmed Instruction, or Individual Learning Packets.

Since educators often say that it is the novelty of the new program that causes its success and not the program itself, Hartley also measured effect sizes for older vs. newer programs. She found that while all four types of instruction benefit somewhat by a novelty effect, tutoring is affected least. C.A.I. dropped in .234 in effect size when the novelty was absent, while tutoring only dropped .025 in effect size. This finding is especially significant to educational planners who want programs that will retain their effectiveness over long periods of time rather than decline once the newness fades.

While Hartley's study adds much to our understanding of tutoring and its effects, its one limitation was its inclusion of only the math content area. Even though Hartley was able to identify 29 studies examining tutoring in the math content area, there are greater numbers of tutoring studies in other content areas such as reading and language development. Critics could argue that since math is a more highly structured and easily measured content area, tutoring would be most

effective there. Most researchers, however, have found equally strong effects in the reading content area. Harrison found that when low achievers were tutored in reading teachers had a much greater tendency to rank the students in the top 50% of their class (Harrison, 1976). Melaragno and Newmark (1968) found similar success with Mexican-American students. Osguthorpe (1976) investigated the effects of parents tutoring their own children in reading. Results again showed that tutored students performed significantly better than students in the comparison group.

Academic Performance of Tutors

Of equal interest to the learning gains of tutees is the academic growth of tutors. Many tutoring programs have aimed at the tutor more than the tutee. In fact, in two separate studies tutors gained more in reading skills than did the students they tutored (Hassinger & Via, 1969; McWharter and Levy, 1971). Unfortunately neither of these studies employed a control group for tutors, but the comparison between tutors and tutees is interesting in itself.

In a study with 7th and 8th grade students Houser (1974) found that tutors gained in reading skills significantly more than a control group. In a much larger study Strodtbeck and Granick (1972) found that tutors benefitted academically from their participation in the Youth Tutoring Youth program. Tutors improved their language skills (vocabulary development) significantly more than controls. The Youth Tutoring Youth program gained national recognition and by 1972 had been implemented in 450 schools. The initial objective of the project was to aid students attending inner city schools. Most of the students participating in the program were low achievers who had experienced serious difficulty with both learning and social adjustment.

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In the meta-analysis study previously mentioned Hartley (1977) computed an effect size for tutors as well as tutees. In the comparison 68 effect sizes were included (50 for tutees and 18 for tutors). The interesting result indicated that tutors gained about as much from their participation (.58 mean effect size) as did tutees (.63 mean effect size). It is also interesting to note the ratio of effects measured for tutors as compared with tutees. Hartley found nearly three times as many effects measured for tutees as she did for tutors, but both groups were gaining about equally from the experience. Tutors' academic growth in this instance is of special significance because they were not currently studying the content they were tutoring, while many of the tutees were studying the content both in class and during tutoring. From available data it would appear that while investigators have been less eager to measure effects on tutors, there is nearly always a significant improvement in academic performance. These findings hold special significance for tutoring programs because tutor managers must communicate to parents of tutors the benefits that will come to their children as they engage in the tutoring process.

In the first comprehensive review of tutoring theory and programs Gartner, Kohler and Riessman (1971) concluded that two of the most stable and pervasive effects of tutoring were the improved academic performance of both tutors and tutees. Their conslusions were consistent with those of Hartley and with most of the individual investigators assessing the effects of tutoring.

Personal/Social Adjustment of Tutees

As early as 1588 Montaigne began to criticize the traditional teacher/student relationship saying that the authority of the teacher was often the

greatest impairment to learning. In more modern terms it might be said that the teacher/student relationship is most often a parent/child type of relation ship rather than an adult/adult situation. Instead of searching on their own, students in the authoritative teacher's classroom usually wait to be told what to do and how to do it. This dependency on an authority figure can diminish students' ability to develop personally and socially. Sarbin (1976) in recounting his own experience as a tutee concluded that the single most important effect on him as a person was the relationship that he developed with his tutor. In other words, he learned something about himself (personal) and about friendship (social) by being tutored.

Jerome Bruner (1972) has made one of the strongest calls for students to tutor one another. He believes that the present educational system emphasizes competition and prohibits students from experiencing positive social growth. His solution is to provide students with opportunities to help one another, to be given responsibility to assist other students and to switch roles as tutors and tutees. In his own words, "I would strongly urge. . .that we use the system of student-assisted learning from the start in our schools" (Bruner, 1972, p. 63). By implementing such systems Bruner believes that our schools would become a "communal undertaking." One author has actually developed a system which he calls the "Tutorial Community" (Melaragno, 1976). By "community" he means that any successful tutoring program must be viewed as a society in miniature. The entire school and community must be involved in its development and execution. Each person involved must under stand specific roles and responsibilities in order to create the total tutorial community.

Perhaps the most obvious personal/social benefit for tutees comes through the opportunity that tutees have of modeling pro-social behaviors of the tutor. Bandura (1971) has demonstrated the power of modeling as a social-learning tool in a variety of settings. Hartup (1976) argues that modeling is the precise reason that cross-age tutoring is superior to peer or adult/child tutoring. His research indicates that young children admire older children and want to emulate them. Because of this admiration, Harteys suggest that young students will learn more academically and socially. Bell (1797) seemed to value this social growth as much as the academic growth of students. In his own words Bell said:

> By these means a few good boys, selected for the purpose, as teachers of the respective classes, form the whole school, teach their pupils to think rightly, and mixing in all the little amusements and diversions, secure them against the contagion of ill example, or the force of ill habits; and by seeing that they treat one another kindly, render their condition contented and happy (Allen, 1976, p. 9)

Personal/Social Adjustment of tutors

Most tutoring programs that have emphasized personal/social development have expected the major growth to occur with tutors. Coleman (1974) concluded that the only way for children to ultimately develop social maturity was to be given responsibility for some other student's growth and then to alternate roles. Coleman's arguments are parallel with those of Bruner (1972). A descriptive study which demonstrates empirically the bond between tutoring and social development was conducted by Feshbach (1976). In her series of studies she measured the effects of social class and ethnicity on the tutoring style employed. She found that there were marked differences among different social classes and ethnic groups in their personal tutoring techniques. For example, lower social class children were less apt to provide the tutee

with positive feedback for correct answers. When children themselves have low self esteem it would appear that they have difficulty building someone elses self esteem.

Feshbach's data are important for two reasons. First, there is an indication that socialization and tutoring are closely connected. Second, she concludes that the techniques which are indicative of pro-social behavior can be trained. In other words, if students have low self-esteem and are generally negative around peers, perhaps the most effective way to help the students is by giving them responsibility for helping a younger student. It is assumed that a tutor training program would be offered to these students emphasizing pro-social behaviors.

Several studies have assessed tutors' growth in self-esteem. As these results are discussed it is interesting to keep in mind that in no instance was there formal direct instruction given on self-awareness or ego development. In other words, the studies cited in this section are not investigations of peer counseling (where the prime objective is personal development), but peer and cross-age tutoring (where the content covered is usually reading or math).

In their review of tutoring research and programs, Gartner, Kohler and Riessman (1971) concluded that tutors experience growth in self-esteem as well as socialization. Houser (1974) found that tutors' self-concept increased significantly more than control students. Strodtbeck, Ronchi and Hansell (1976) found that tutors' self-esteem increased when they participated in the Youth Tutoring Youth program, but the data were mixed. Certain studies showed that gains were not significant when compared to nontutor control students. Their conclusion was that while some investigators had advocated the tutoring role for all students

(even very low self-esteem students), the research strongly indicated that the role of tutor can be highly stressful for low self-esteem students. The following table given by Strodtbeck, Ronchi and Hansell (1976, p. 215) illustrates the differential effects the role of tutor can have on tutors' self-esteem:

Table 1

Efficacy Score Change by Ego Development
for tutors and Non-tutors

Ego Development	Tutors (n)	Non-Tutors (n)	Difference
High	.55 (29)	.00 (8)	.55
Medium	.13 (73)	.42 (33)	-.29
Low	.02 (79)	.63 (22)	-.61

The table demonstrates quite clearly that tutoring had a negative effect on low self-esteem tutors. The data indicates that those students would have been much better off-having not tutored.

The Strodtbeck et.al. data need to be highlighted and tempered at the same time. The results are noteworthy because they validate the possible negative effects of tutoring. It is difficult to identify other studies that produced warnings for tutorial system developers. The data must, however, be viewed with the understanding that the results apply to the NYC Youth Tutoring Youth program and may have little bearing on other programs which emphasize different training and management components. Strotbeck et.al., indicate themselves that if the tutoring environment were more highly structured and management support were more consistant, low self-esteem students would probably have a more positive experience.

Self-concept has not been the only personal/social skill measured in tutoring studies. Strodtbeck et.al. also found that attendance increased when students were asked to tutor. This indicates both the students' attitude toward the act of tutoring and their increased pro-social behavior. Most authors would suggest that the increased attendance was less a function of enjoying tutoring than it was the increased feeling of responsibility tutors acquire as they develop a close helping relationship with their tutee(s). The increase in average attendance is an operational measure of the social maturity benefits of tutoring suggested earlier by Coleman (1974) and Bruner (1972).

Moral Development of Tutors

One of the more recent emphases in tutoring research is the topic of moral development. Paolitto (1976), a student of Kohlberg's, made the most convincing case for tutoring as an enhancer of moral development. Some reviewers would include the studies on moral development as a subtopic under personal/social adjustment. The studies that have been conducted on tutoring and moral development have been designed in unique ways that set them apart from most other tutoring studies that have emphasized personal/social adjustment. First, most tutoring research that has assessed socialization has viewed it as a by-product of the act of tutoring. The moral development studies have been structured so that the central purpose is to enhance moral development. Most of the moral development studies have included training components for tutors which emphasize topics in decision making and Kohlberg's theoretical model (Kohlberg, 1969). Few of the personal/social studies included any such components. Second, the moral development studies have taken a much more cognitive (as opposed to behavioral) approach in which the students' moral reasoning capabilities have been targeted and measured.

Sullivan (1975) investigated the effects of tutoring on adolescents' moral and ego development. The author had adolescents participate in a year long practicum experience in which they were trained to tutor small groups of younger children in moral development topics. At the conclusion of the practicum experience tutors had improved in both moral and ego development.

Greenspan (1974) conducted one of the more carefully conceptualized studies on moral development and tutoring. She outlined four areas of emphasis and outcome that a tutoring program should include: 1) intellectual development, 2) moral development, 3) identity formation, 4) interpersonal development. In her research rationale Greenspan emphasized role-taking as the tutoring activity which should theoretically have the most profound effect on each of the four areas. Thus, the role of tutee again became deemphasized and the program objectives focused more directly on tutors. Greenspan found that tutors experienced significant growth in cognitive understanding but did not evidence any change in ego development.

Atkins (1972) also found that tutors improved in their moral judgements but showed no growth in ego development. Both Greenspan and Atkins investigated the effects of tutoring on adolescents, a period in life when identity and personal adjustment are unstable (Erikson, 1965). Their results, along with Sullivan's indicate that tutoring can have significant positive effects on adolescent tutors' moral development. Their failure to obtain significant growth in ego development could be due to the short duration of their studies.

Implications For Special Students

In preceding sections of this review it has been suggested that tutoring can be expected to elicit improvements in three primary areas of

human development: 1) Academic Performance, 2) Personal/Social Adjustment, and 3) Moral Development. In this section each purpose will be discussed as it relates to the needs of special students. Included in the definition of "special students" will be all handicapped and gifted students. It is important to note that the research on tutoring with special students is limited to a few studies and articles. Most of these articles describe tutoring programs rather than report experimental data on their effectiveness. Paolitto (1976) called for an increased effort in researching the effects of tutoring on special students.

Academic Performance of Special Students

Most handicapped students experience academic difficulty. Those students with serious language development problems seem to experience the most difficulty. Walter (1978) describes a set of data that clearly demonstrate hearing-impaired students' problems with language when compared with normally-hearing peers. Learning disabled students by definition must be performing significantly below grade level before receiving any special services. Mentally handicapped students also have serious learning problems when compared with non-handicapped peers.

The academic performance gap between most handicapped students and their non-handicapped peers is well documented. The implications for tutoring are not quite so apparent. Some leaders in special education would discourage cross-age or peer tutoring because they believe the student may be short changed. A recent meeting of the executive committee of the Alexander Graham Bell Association for the Deaf passed a resolution that hearing-impaired students should not be placed in the regular classroom unless they can benefit from direct (teacher initiated) instruction (Nix, Note 1). In other words, the Association is saying that the best and most

effective method of instruction is from a professional teacher and that additional support service personnel (tutors, interpreters) detract from or dilute this teacher directed instruction.

Few of the critics of tutoring for special students have considered the potential benefits of the special student taking the role of the tutor. Most assume that the handicapped student will always be the tutee. Since the available data on tutoring with non-handicapped students indicates that tutors usually learn as much about the topic they are tutoring as do the tutees, careful consideration should be given to training handicapped students as tutors and then measuring the effects on their academic performance. Since many of the previously mentioned studies have used disadvantaged students as tutors and tutees, there is every indication that handicapped students would benefit by being cross-age or peer tutors.

There is also some indication that tutoring would benefit gifted as well as handicapped students. Hartley, in her meta-analysis study computed predicted effect sizes for tutoring for both high and low ability students in second, fifth and eleventh grades. The results showed that high ability students had slightly larger effect sizes across all three grade levels. This means that high ability or gifted students who tutor or are tutored perform significantly better on the topic tutored than gifted children who do not particpate. Several interpretations of these data are possible. First, it may be that while tutoring is effective for low achievers, the individualization makes it even more effective for gifted students. Second, as with the Strodtbeck, et. al. data on self-concept, gifted students are more comfortable, less threatened in the tutoring situation and therefore, gain more from the experience.

Personal/Social Adjustment of Special Students

Special students often have increased problems in personal and social adjustment. With hearing-impaired students there is a general consensus that they have more difficulty with socialization than do their normally hearing peers (Bishop, White, and Emerton, Note 3; Emerton, Hurwitz and Bishop, Note 4).

These social difficulties seem to have roots in cultural differences as well as experiential deprivation caused by the sensory impairment. There is less agreement on the actual level of self-esteem held by hearing-impaired students. In a recent review of the literature on self-concept and deafness, Garrison and Tesch (1978) found that while most researchers had previously agreed that hearing-impaired students had lower self-esteem than their normally hearing peers, the apparent cause of the discrepancies was the inability of hearing impaired students to understand the test items on the self-concept instrument.

If it is true that hearing-impaired students have self-concepts that are similar to those of the normally hearing population, there are still strong implications for the design of tutoring programs. Since Strodtbeck found that students with extremely low self-concepts should not be assigned as tutors, previous data on hearing-impaired students would suggest that their low self-esteem might prohibit them from benefitting from the tutoring role. Garrison and Tesch's data, on the other hand, indicates that hearing impaired students could be expected to benefit (in ego development) from the tutoring role on about the same level as normally hearing students. It is important to note at this point that students with high, medium and low self-esteem can be found at all levels of academic performance. In other words, it has been demonstrated

that self-esteem is not a function of academic performance (Quinn, 1978). Therefore, gifted students as well as low achievers and handicapped students should receive similar benefits in self-esteem from the tutoring experience.

Moral Development and Special Students

Few studies have investigated the moral development of special students. DeCaro and Emerson (Note 5) conducted a study in which they measured the moral reasoning capabilities of young adult hearing-impaired students. They used Kohlberg's conceptual framework and compared hearing impaired students' stages of moral reasoning with the stages of the non-handicapped population measured by Kohlberg (1969). Their results indicated that hearing-impaired students function on a lower level of moral development than do normally hearing people. One criticism that might be waged at the study is the possibility that the scores could be depressed because of the heavy dependence on language in the administration of the moral dilemmas instrument. In this case, however, it would appear that the investigators took adequate precautions to make certain that hearing-impaired students understood the task items. They also attempted to control for the possibility that the test examiner might misinterpret the students' responses. Because of these controls, it must be assumed at this point that hearing-impaired students have more difficulty with moral judgements than does the normally hearing population.

One of Paolitto's main points in her review of cross-age tutoring is the potential benefits in moral development that can come from being a tutor. Schools have traditionally paid much more attention to how students' academic performance might be improved than they have with how

students' social and moral development could be enhanced. There are few, however, that would argue that schools are solely for teaching students how to read and write. Schools are where students learn to behave in groups and organizations. Schools are where students learn to deal with authority and personal responsibility. But most schools have no formal curriculum in social/moral reasoning; and perhaps they shouldn't. Perhaps socialization and moral reasoning are best enhanced by structuring the environment so that students are given opportunities to accept responsibility and make decisions that affect not only themselves but other students as well. Several researchers both in sociology and in education feel that one of those opportunities is tutoring (Coleman, 1974; Bruner, 1972; Atkins, 1972; Greenspan, 1974; Sullivan, 1975).

If being a tutor is beneficial for the moral development of individuals, it should be even more beneficial for populations which have extra difficulty in moral reasoning. This statement must be tempered by the fact that tutoring involves decision making and if some special students have poor decision making skills, the task of tutoring may add too much stress for it to be beneficial. Just as low self-esteem students often do not benefit from certain tutoring experiences, students low in moral reasoning may also have problems as tutors.

Types of Tutoring

No review of tutoring would be complete without a discussion of the major types of tutoring that are presently in use. In this section each of the delivery systems that are used in tutoring programs will be discussed with implications for special students. No attempt will be made to describe all of the various tutoring programs that have been or are

presently in use. For a more complete description of these programs, see Allen (1976) or Devin-Sheehan, Feldman and Allen (1976).

Adult-child Tutoring

One of the earliest forms of tutoring was designed around the mentorstudent model. This type of tutoring was analogous to a teacher (authority figure) in a classroom with only one student. In the eighteenth century most rich children had private tutors. J. M. R. Lenz in 1771 even wrote a play called The Tutor in which he strongly criticized the institution of private tutors (Yuill, 1972). The present rationale for using an adultchild delivery system is based on two points: 1) tutors need less training and 2) tutors need less supervision. They need less training because they are carefully selected for specific purposes. An adult might be selected to tutor physics or chemistry, who has a college degree in one of those areas. Adults need less supervision than younger tutors because they supposedly are more capable of accepting responsibility and making decisions. These adults might be community volunteers (senior citizens, parents), paid paraprofessionals (teaching assistants in post-secondary settings or teacher aides in elementary and secondary grades) or paid professionals (remedial reading teachers, resource teachers, learning disabilities teachers, teachers of gifted students).

In a study assessing the effects of parents tutoring their own low achieving children, Osguthorpe (1976) found that students made significant gains in reading skills. Perhaps more important were the findings regarding the effects of tutoring on the parent-child relationship. The majority (73%) of parents felt that the eight week tutoring experience had actually improved their relationship with their child. Some parents saw the program

as having no effect on their relationship (27%), while none of the parents perceived that tutoring their own child put a strain on their relationship.

Gallagher (1960) reported success with an adult tutoring program for severely brain-injured students. Among his conclusions are that: 1) mentally handicapped students showed significant improvement in intellectual development and verbal skills, 2) mentally handicapped students showed increased ability to pay attention, 3) when tutoring ceased, students' growth regressed or remained stagnant. Gallagher's results have strong implications for the types of instructional methodology we use with mentally handicapped students. From his data it would appear that even students with severe mental deficiencies benefit more from tutoring than from more traditional group instruction.

Several investigators have reported the use of adult tutors with hearing-impaired students. Holcomb and Corbett (1977) suggest the use of interpreters as tutors for younger deaf students. The rationale is that the interpreter is in the classroom with the hearing-impaired student and can become a dual-role support person. Some professional educators of hearing-impaired students argue that such a system can be dangerous because the interpreter may be unskilled in the basic techniques of tutoring (Larsen, Note 6).

Several authors have recommended the use of adult tutors with hearing-impaired students for the enhancement of communications skills (B. E. S. E., 1971; Bowman, 1973; Northcott, 1972). While there is documentation that hearing-impaired students are being tutored by adult tutors, there is little research evidence to suggest the effects of these tutoring programs.

On a post-secondary level jones and Murphy (1972) suggest the use of community adult tutors who are expert in a variety of needed college

subjects. These tutors are paid professionals and are expected to possess or develop the needed communications skills that will allow them to interact effectively with hearing-impaired students.

Peer Tutoring

Peer tutoring is much more analogous to cross-age tutoring than to the adult-child delivery system. In a peer tutoring situation roles can be switched. The tutor can become the tutee and the tutee the tutor. Tutors are seen less as authority figures than they are as friends. In the adult-child system the young tutee can never comfortably trade roles and tutor the adult. The adult always knows more (or is perceived as knowing more) and so the tutee is forced to play the more passive, non decision-making role as the receiver of help and instruction. Peer tutoring by its very nature is different. The tutor is viewed more as an equal, someone who may know more than the tutee about the tutored topic but not about everything. Peer tutoring is the natural extension of the cross-age system. As people reach a certain level of physical maturity, age is no longer equated with knowledge and the benefits of the tutor being older than the tutee seem to disappear. It is clear, however, from the theory of transactional analysis that people can play the parent or child role at almost any age. Peer tutoring to be most effective assumes that the tutor and tutee establish an adult-adult relationship.

There are several accounts of peer tutoring used with special students. Wagner (1972) trained mentally handicapped students as tutors for other mentally handicapped students. Although the training required was extensive, the effects were judged as being worth the effort. Both tutors and tutees

demonstrated significant improvements from their participation in the program. In another series of articles a program is described which was developed at the National Technical Institute for the Deaf, which relies on normally-hearing peers as tutors and note-takers (Osguthorpe and Whitehead, 1979; Osguthorpe, Note 7; Hurwitz and Osguthorpe, Note 8; Wilson, Note 9). This program trains normally-hearing college students to tutor and take notes for hearing-impaired college students enrolled in regular classrooms. The data collected on the program indicate that tutors are viewed as having positive effects by both students and faculty. There is some indication, however, that hearing-impaired students who are performing well in the classroom are those most likely to avail themselves of the tutoring service. Guides for both tutor/notetakers and program managers provide guidelines for implementing this peer program (Osguthorpe, 1980; Osguthorpe, Wilson, Goldmann and Panara, 1980).

It is important to note at this point that peer tutoring with special students can imply two different systems. In the N.T.I.D. system normally-hearing students are the tutors. In the system described for mentally handicapped students non-handicapped students were not involved. In each case benefits derive to participants, but the benefits are different. While the N.T.I.D. program encourages integration (as do other programs, Bitter, 1973), the program with the mentally handicapped allows the students themselves to play the role of tutor rather than tutee only.

Cross-age Tutoring

Cross-age tutoring has advantages over both peer and adult-child tutoring. First, it maximizes the benefits of age perceptions among children. Because younger children admire and want to emulate older children, they feel honored to be tutored by older children. Second, it increases the

integration of ages in the school. This can promote more behavior modeling, not just from the tutee but from other students who observe the tutor. The tutor's behavior says to all younger students that they might also expect to take the tutoring responsibility as they get older.

There are two basic forms of cross-age tutoring: 1) matched students and 2) sibling tutoring. Cicerelli (1972) found that students tutored by older siblings performed better then did students who were simply placed with a regular cross-age tutor. His data also indicated, however, that only older sisters were superior to regular tutors. There was no difference for older brothers when compared with regular tutors.

Unfortunately there has been little, if any, systematic data gathered on cross-age tutoring systems with special students. In one isolated case a non-handicapped sixth grade girl has tutored a mainstreamed first grade, Down's Syndrome child. The tutor worked with the child on a daily basis during the entire school year on reading skills. At the end of the school year the child was reading on a 1.6 grade level (Monson, Note 7). While there were no controls and, therefore no way to determine the extent to which the gains were due to tutoring, it is interesting that the child made so much progress and that the school system assigned a cross-age tutor to a child with a severe mental handicap.

Discussion and Conclusions

Table 2 illustrates the types of tutoring discussed in the previous section and depicts the relationship between type and the purposes that might be acomplished by each delivery system. Integration was included as a purpose not because researchers have previously measured the effects of tutoring on integration, but because it has been expressed as a purpose in certain cases where tutoring programs have been implemented with handicapped

students. The purpose of the table is to amplify the potential effects that can be expected from the various forms of tutoring. The table is not designed to condone one form of tutoring over another or to suggest that only one form of tutoring is effective. Those who design tutoring programs must make the value judgements that determine the primary and secondary purposes of a given program.

Table 2

The primary potential effects of each major tutoring type according to broad tutoring purposes.

	Types of Tutoring					
	Adult-Child		Peer		Cross-age	
	H.I. Tutor	N.H. Tutor	H.I. Tutor	N.H. Tutor	H.I. Tutor	N.H. Tutor
Academic Performance	X	X	X	X	X	X
Personal/Social			X	(X)	X	(X)
Moral Development			X		X	
Integration		(X)	(X)	X	(X)	X

H.I. = Hearing-impaired

N.H. = Normally hearing

It can be seen in Table 2 that the adult tutor should be expected to fill only the purpose of academic improvement. There may be instances when a normally hearing adult tutor could be said to enhance integration, but not in the truest sense of the word. Because the hearing-impaired student cannot reverse tutoring roles with the adult

tutor, it is unlikely that personal/social or moral development will be affected. Supporters of the adult-child method of tutoring might agree that because the adult possesses a higher level of content expertise, the tutee will learn more from the adult than from a cross-age or peer tutor. Hartley (1977), however, found that cross-age tutoring produced greater academic growth (effect size = .793) than either peer (effect size = .522) or adult (effect size = .537). These figures were obtained across all ages of tutees in elementary and secondary schools.

It is important to note that these data did not include post secondary students, nor severely handicapped students. A case could still be made for using skilled adult tutors with young hearing-impaired children whose communications skills preclude them from meaningful interaction with normally-hearing children. Older hearing-impaired children might, however, still be an effective alternative.

Peer and cross-age tutoring fulfill a broader range of purposes than does the adult-child system. Table 2 indicates that both systems could be designed to meet three tutoring purposes. In each case it is assumed that the hearing-impaired tutor might be asked to tutor both normally hearing and hearing-impaired students. Only then would the hearing-impaired tutor be able to increase integration. The normally hearing tutor would also be likely to affect personal/social growth less than when the hearing-impaired student assumed the role of tutor. The normally hearing tutor could be a social role model but could not provide the tutee with the responsibility and decision-making characteristics that come through playing the role of tutor.

While peer and cross-age tutoring appear to have several advantages over the adult-child system, there are some disadvantages that must be considered

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First, the adult-child system requires much less training and supervision. In situations where the prime goal of a program is to effect academic growth and where complex content knowledge is required, adult tutors could be the best option. Second, there is a selection advantage to adult tutors in many settings. Since adults are hired, they can be carefully selected and matched with the most appropriate student. Peer and cross-age tutors are more difficult to select, especially if parents prefer that their hearing-impaired child not spend time tutoring another who seems to need instruction less than the hearing-impaired child.

There are several broad conclusions that can be drawn from the existing research on tutoring.

1. Tutoring is one of the most effective methods of instruction available. As an educational technique it is more effective than large group instruction, computer assisted instruction, programed texts or individualized learning packets. It allows students to move through a given topic of instruction at their own pace with highly adaptable strategy, sequence and content tailored to their unique needs as a learner. No other form of mechanized or printed instruction offers a fraction of the flexibility of a human tutor.
2. When students act as tutors, there is strong indication that they can improve in their own self-esteem, if they enter the tutoring situation with ample ego strength or have highly adequate training and supervision.
3. When students act as tutors they can improve their social behaviors and adjustment. If they have had attendance problems, their attendance should increase. If they have had behavioral (attention) problems, their ability to attend should increase.

4. When students act as tutors and the program focuses on moral development, tutors can enhance their own ability to solve moral issues. Their decision-making skills should increase and allow them to reach higher stages of moral reasoning.

Drawing upon these conclusions and the previous research cited, the following implications arise for special students and hearing-impaired students in particular:

1. Special students stand to gain most from tutoring. They not only have problems in academic performance, but often evidence difficulty in the areas of personal/social adjustment and moral development.
2. Of all special students, hearing-impaired students have unique characteristics which should allow them to benefit most from tutoring and being tutored. Since tutoring is in essence a communications exercise, hearing-impaired students should be able to enhance their own level of receptive and expressive communications skills by engaging in the roles of tutor and tutee.
3. Providing special students opportunities to tutor other students should help students to increase their own sense of independence. As special students go hrough school programs they are typically the recipients of extr services rather than the providers of service themselves. Tutoring offers a unique situation for the hearing-impaired student to become a support service provider to peers or younger students.

Recommendations

If hearing-impaired students are to receive the benefits from tutoring that have been demonstrated with the general population, efforts must be

greatly increased to design tutoring programs and research studies with hearing-impaired students. At present no systematic data has been gathered on a cross-age system with hearing-impaired students. Such systems could be designed in both self-contained programs, as well as mainstreamed settings. Data need to be collected on the precise effects of hearing-impaired students tutoring each other and hearing-impaired students tutoring normally hearing students.

As studies are designed to assess the effects of cross-age and peer tutoring with hearing-impaired students, the following considerations should be kept in mind:

1. A comparison group of students who do not receive the treatment should be selected before the project is begun. One of the most common flaws in tutoring research has been the lack of any control groups. This usually leaves researchers with pre-post gain scores as their sole criterion to determine effects. These gain scores are not adequate for drawing any experimental conclusions, unless similar scores were obtained from a group of students who did not receive the tutoring.
2. Written tests should be used only when appropriate. Since hearing-impaired students often misinterpret test items, alternate methods of measurement (structured interviews, observation) should be employed.
3. Studies should be designed to answer multiple questions. If a program has multiple purposes, measurement techniques should be developed that will assess each of those purposes. Many research studies in the past have failed to find many of the effects of their programs because they failed to measure anything but academic growth.

Reference Notes

1. Allen, V. L. and Devin-Sheehan. L. D. Cross-Age interaction in one teacher schools. Unpublished manuscript, Wisconsin Research and Development Center for Cognitive Learning, Madison, Wisconsin, 1974.

2. Nix, G. Personal communication during the National Symposium on Placement and Support Services for Hearing-Impaired Students, Washington, D.C., May, 1980.

3. Bishop, M. E., White, K. R. and Emerton, R. G. NTID's approach to socialization. Working paper, NTID, 1977.

4. Emerton, R. G., Hurwitz, T. A. and Bishop, M. E. Development of social maturity in deaf adolescents and adults. Working paper, NTID, 1977.

5. DeCaro, P. and Emerton, R. G. A cognitive-developmental investigation of moral reasoning in a deaf population. Paper presented at the annual meeting of the American Educational Research Association, Toronto, 1978.

6. Larsen, H. Personal communication during the National Symposium on Placement and Support Services for Hearing-Impaired Students, Washington, D.C., May, 1980.

7. Osguthorpe, R. T., The hearing peer as a provider of educational support to deaf college students. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, California, April, 1976.

8. Hurwitz, T. A. and Osguthorpe, R. T. An evaluation of tutoring services at NTID. Internal report, National Technical Institute for the Deaf, Rochester, New York, 1978.

9. Wilson, J. J. A tutor/notetaker program for deaf students that really works. Working paper, National Technical Institute for the Deaf, Rochester, New York, 1979.

10. Monson, C. S. Personal communication, May, 1980.

References

Allen, V. L. Children as teachers: Theory and research on tutoring. New York: Academic Press, 1976.

Atkins, V. S. High school students who teach: An approach to personal learning. Unpublished doctoral dissertation, Harvard University Graduate School of Education, 1972.

Bardura, A. Analysis of modeling processes. In Psychological model-ng: Conflicting theories, edited by A. Bardura. Chicago: Aldine-Atherton, 1971.

Bell, A. An experiment in education made at the male asylum of Madras: Suggesting a system by which a school or family may teach itself under the superintendence of the master or parent. London: Cadell and Davis, 1797.

Bell, A. Instructions for conducting schools through the agency of the scholars themselves: Comprising the analysis of an experiment in education, made at the male asylum, Madras, 1789-1796. London: 1817.

Bitter, G. B. Facilitating the integration of hearing-impaired children into regular public school classes. Volta Review, 1973, 75 (1), 13-22.

Bowman, E. A resource room program for hearing-impaired students. Volta Review, 1973, 75, (4), 208-213.

Bruner, J. Immaturity--its uses, nature and management. The Times Educational Supplement. London, October, 27, 1972. pp. 62-63.

Bureau of Elementary and Secondary Education (DHEW-OE), Evaluation of the 1970-71 ESEA, Title VI-A, cued speeds program for aurally handicapped children, ERIC, 1971.

Cicerelli, V. G. Siblings teaching siblings. In V. L. Allen (Ed.) Children as teachers: Theory and research on tutoring. New York: Academic Press, 1976.

Coleman, J. S. Youth: Transition to adulthood. Chicago: University of Chicago Press, 1974.

Devin-Sheehan, L., Feldman, R. S. and Allen, V. L. Research on children tutoring children: A critical review. Review of Educational Research, 1976, 46, 355-386.

Dures, A. Schools. London: Batsford, 1971.

Erikson, E. Youth: Fidelity and diversity. In E. Erikson (Ed.), The challenge of youth. New York: Doubleday, 1965.

Feshbach, N. D. Teaching styles in young children: Implications for peer tutoring. In V. L. Allen (Ed.) Children as teachers: Theory and research on tutoring. New York: Headrini Press, 1976.

Gallagher, J. J. The tutoring of brain-injured mentally retarded children. Springfield, Illinois: Charles C. Thomas, 1960.

Garrison, W. M. and Tesch, S. Self-concept and deafness: A review of research literature. Volta Review, 1978, 80, (7), 457-466.

Gartner, A., Kohler, M. C., and Riessman, F. Children teach children: Learning by teaching. New York: Harper and Row, 1971.

Glass, G. V. Integrating findings: the meta-analysis of research. A chapter in Review of Research in Education, 1978, 6.

Glass, G. V. Primary, secondary and meta-analysis of research. Educatio Researcher, 1976, 5, 3-8.

Greenspan, B. M. Facilitating psychological growth in adolescents throug a child development curriculum. Unpublished doctoral dissertation, Harvard University Graduate School of Education, 1974.

Harrison, G. V. Structured tutoring: Antidote for low achievement. In V. L. Allen (Ed.) Children as teachers: Theory and research on tutoring. New York: Academic Press, 1976.

Hartley, S. S. Meta-analysis of the effects of individually paced instruc tion in mathematics. Unpublished doctoral dissertation, University of Colorado, Boulder, Colorado, 1977.

Hartup, W. W. Cross-age versus same-age peer interaction: Ethological and cross-cultural perspectives. In V. L. Allen (Ed.) Chidren as teachers: Theory and research on tutoring. New York: Academic Press, 1976.

Hassinger, J., and Via, M. How much does a tutor learn through reading. Journal of Secondary Education, 1969, 44, 42-44.

Holcomb, R. and Corbett, E. Mainstream--The Delaware approach. Special Education in Canada, 52, (1), 12-5.

Houser, V. G. Effects of student-aide experience on tutors' self-concept and reading skills. Unpublished doctoral dissertation, Brigham Young University, Provo, Utah, 1974.

Jones, R. C. and Murphy, H. J. The Northridge plan for higher education of the deaf. American Annals of the Deaf, 1972, 117, (6), 612-616.

Kohlberg, L. Stage and sequence: The cognitive-developmental approach to socialization. In D. Goslin (Ed.) Handbook of socialization theory and research. New York: Rand McNally, 1969.

de Laborde, Le Comte Alexandre. Plan d'education pour les enfans pauvres, d'apres les deux methodes combinees du docteur Bell et M. Lancaster. Paris: H. Nicolle, 1815.

McWhorter, K. T. and Levy, J. The influence of a tutorial program upon tutors. Journal of Reading, 1971, 14, 221-224.

Meiklejohn, J. M. D. Dr. Andrew Bell: An old educational reformer. London: Blackwood, 1882.

Melaragno, R. J. The tutorial community. In V. L. Allen (Ed.) Children as teachers: Theory and research on tutoring. New York: Academic Press, 1976.

Melaragno, R. J. and Newmark, G. A. A pilot study to apply evaluation-revision procedures to first-grade Mexican-American classrooms. Tutorial Community Project, Pacoima, California, 1968.

Northcott, W. H. Tutoring a hearing-impaired student in the elementary grades. Volta Review, 1972, 74, (7), 432-435.

Osguthorpe, R. T. The tutor/notetaker: Providing academic support to mainstreamed deaf students. Washington, D.C.: Alexander Graham Bell Association for the deaf, 1980.

Osguthorpe, R. T. and Harrison, G. V. Training parents in a personalized system of reading instruction. Improving Human Performance Quarterly, 1976, 5, (2), 62-68.

Osguthorpe, R. T. and Whitehead, B. D. Principles of tutoring in note-taking. In M. E. Bishop (Ed.), Mainstreaming: Practical ideas for educating hearing-impaired students. Washington, D.C.: The Alexander Graham Bell Association for the Deaf, 1979.

Osguthorpe, R. T. and Johnson, M. V. Instructional review articles in education: A critical analysis. Paper submitted for publication, 1980.

Osguthorpe, R. T., Wilson, J. J., Goldmann, W. R. and Panara, J. E. Manager's guide for the tutor/notetaker: Providing academic support to mainstreamed deaf students. Washington, D.C.: Alexander Graham Bell Association for Deaf, 1980.

Paolitto, D. P. The effect of cross-age tutoring on adolescence: An inquiry into theoretical assumptions. Review of Educational Research, 1976, 46, 215-238.

Quinn, D. W. The causal relationship between mathematics achievement and attitude in grades 3 to 6: A cross-lagged panel analysis. Unpublished doctoral dissertation, Western Michigan University, Kalamazoo, Michigan August, 1978.